

REMARKS

Claims 1-23 are pending in this application. By this Amendment, claims 1, 13 and 18 are amended. Reconsideration of the application is respectfully requested.

Applicants gratefully appreciate the indication that claim 4 is allowable.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance for the reasons discussed herein; (b) do not raise any new issue requiring further search and/or consideration as the amendments amplify issues previously discussed throughout prosecution; and (c) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection. Entry of the amendments is thus respectfully requested.

The Office Action objects to claims 1, 7, 12 and 20 because of informalities. Independent claim 1 is amended to overcome the informalities by further specifying that the elements are being arranged in an array profile that reduces shielding effects, and as supported in the specification on the last two lines of paragraph [0016]. Moreover, the subject matter of claim 7 is supported in the specification at, for example, paragraph [0018], lines 1-3 and Fig. 5. Finally, the subject matter of claim 20 is supported in the drawings in, for example, Figs. 6, 8 and 9, and the specification at, for example, paragraph [0019], lines 1-4. Accordingly, withdrawal of the objections to the claims is respectfully requested.

The Office Action rejects claim 1 under 35 U.S.C. §102(b) over Mishra et al. (U.S. Patent No. 5,300,986); claims 13-23 under 35 U.S.C. §102(b) over Walsh et al. ("The Negative Corona Distribution for a Long Pin to Plane Geometry"); claims 2-3 under 35 U.S.C. §103(a) over Mishra in view of Croskey et al. (U.S. Patent No. 2,890,388); claims 5 and 6 under 35 U.S.C. §103(a) over Mishra in view of Croskey and Darty (U.S. Patent No.

6,899,854); and claims 8-11 under 35 U.S.C. §103(a) over Mishra in view of Croskey and Yonekawa et al. (U.S. Patent No. 6,208,499). The rejections are respectfully traversed.

In particular, none of the applied references, alone or in combination, disclose or suggest a corona producing device that include a plurality of corona producing elements arranged in an array, the elements being directed at and spaced from a charge retentive surface and arranged in an array profile that reduces shielding effects, as recited in independent claim 1. Moreover, none of the applied references, alone or in combination, disclose or suggest a corona producing element profile determination method that includes determining the electrical potential in space comprising an electrical potential at a plurality of points throughout a region between a charge producing array of corona producing elements and a photoreceptor to adjust an array profile of the corona producing elements, as recited in independent claim 13 and similarly recited in independent claim 18.

Mishra teaches a charging apparatus capable of electrically tuning or altering the corona ion current passing between a corona producing device and a charge retentive surface (Abstract). Moreover, Mishra teaches a single corona producing device 114 enclosed within a U-shaped shield 116 (Fig. 3; col. 7, lines 46-48). Thus, upon closer observation of Mishra, it is clear that Mishra fails to teach an array of corona producing elements, and also fails to teach an array profile that reduces shielding effects, as recited in independent claim 1. Thus, independent claim 1, and its dependent claims, are patentable over Mishra.

Walsh teaches determining the current distribution arriving at a ground plane in a corona discharge (Introduction). Moreover, Walsh teaches determining the distribution of current by using a model consisting of a single corona producing element (Figs. 1 and 4) or pin and measures a pin-to-plane arrangement and current density using six concentric stationary rings (Fig. 3). Moreover, Walsh does not teach adjusting the height of the pin to

reduce shielding effect. Accordingly, Walsh fails to teach a corona producing element profile determination method that includes determining the electrical potential between a charge producing array of corona producing elements and a photoreceptor, and also fails to disclose or suggest using this determination to adjust an array profile of the corona producing element, as recited in independent claim 13 and similarly recited in independent claim 18.

Accordingly, because Walsh does not calculate the potential for an array of pins since Walsh only calculates the potential for a single pin, and because Walsh does not teach adjusting the array profile or the projection of the corona producing elements, Walsh fails to disclose or suggest the features of independent claims 13 and 18. Thus, independent claims 13 and 18, and their dependent claims, are patentable over Walsh.

Croskey teaches an electrostatic charge and apparatus for charging particles of coating material wherein particles of coating material are projected in atomized form from a spray gun through a high density corona discharge zone (col. 1, lines 15-24).

Darty teaches an image forming apparatus usable with colorant and media that includes a colorant applicator at which colorant is provided and a nanotube assembly that emits electron beams to charge the colorant (Abstract).

Yonekawa teaches a corona discharge device used in an electrophotographic image forming apparatus that includes a discharge member and a power supply wherein at least each discharge end portion of the discharge member is made of an electrically conductive material (Abstract).

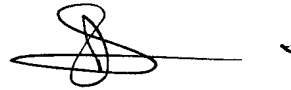
However, none of these additional applied references, alone or in combination, cure deficiencies in Mishra and Walsh in disclosing or rendering obvious the features of independent claims 1, 13 and 18. Thus, independent claims 1, 13 and 18, and their dependent claims, are patentable over a combination of the applied references. Withdrawal of the

rejections of the claims under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-23 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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